

Unit 4 Lesson 10: Interpreting Inputs and Outputs

1 A Function Riddle (Warm up)

Student Task Statement

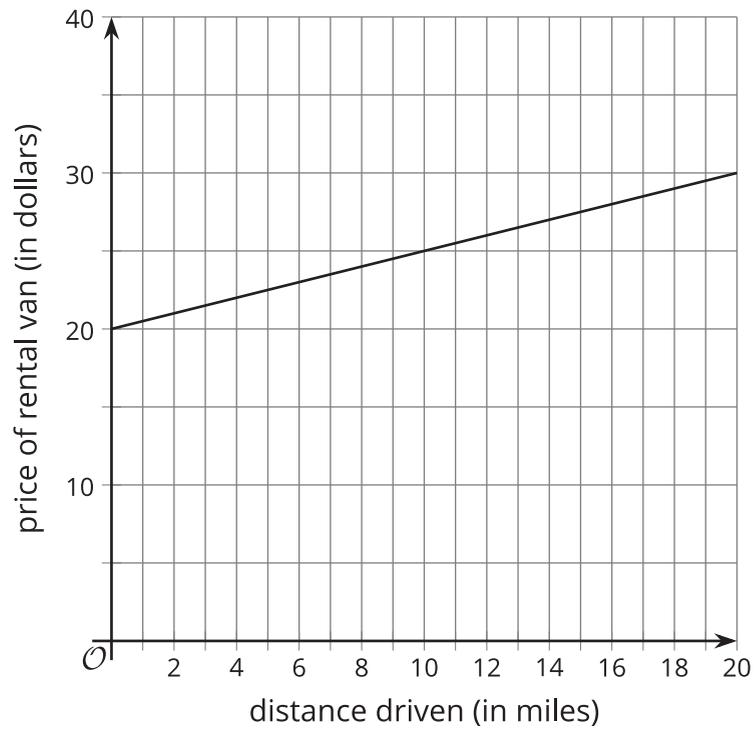
The table shows inputs and outputs for a function. What function could it be?

input	output
1	3
2	3
3	5
4	4
5	4
10	3
11	6

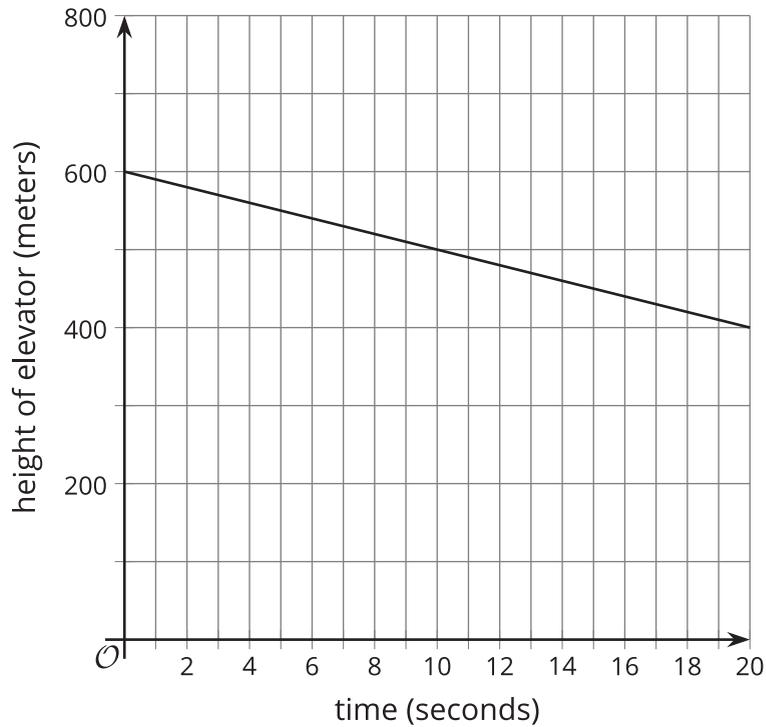
2 What's the Input?

Student Task Statement

1. For each pair of variables, which one makes the most sense as the input? When possible, include a reasonable unit.
 - a. The number of popcorn kernels left unpopped as a function of time cooked.
 - b. The cost of crab legs as a function of the weight of the crab legs.



c.



d.

e. $f(t) = 5t + 8$ where t represents the time that a bike is rented, in hours, and $f(t)$ gives the cost of renting the bike.

f. $g(n) = 7n + 4$ where n represents the number of pencils in a box and $g(n)$ represents the weight of the box of pencils in grams.

2. Write the equation or draw the graph of a function relating the 2 variables.

a. Input: side length of a square, output: perimeter of the square

b. Input: time spent walking (minutes), output: distance walked (meters)

c. Input: time spent working out (minutes), output: heart rate (beats per minute)

3 Matching Possible Inputs

Student Task Statement

For each function in column A, find which inputs in column B could be used in the function. Be prepared to explain your reasoning for whether you include each input or not.

1. Take turns with your partner to match a function with its possible inputs.
 - a. For each function, explain to your partner whether each input is possible to use in the function or not.
 - b. For each input, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

- | | |
|--|---|
| 1. $f(\text{person}) = \text{the person's birthday}$ | • Martha Washington (the first First Lady of the United States) |
| 2. $g(x) = 2x + 1$ | • an apple |
| 3. $h(\text{item}) = \text{the number of chromosomes in the item}$ | • 6 |
| 4. $P(\text{equilateral triangle side length}) = 3 \cdot (\text{side length})$ | • 9.2 |
| 5. $C(\text{number of students}) = 9.99(\text{number of students}) + 15$ | • 0 |
| | • -1 |

For each function, write 2 additional inputs that make sense to use. Write 1 additional input that does not make sense to use. Be prepared to share your reasoning.